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Linking business strategy to service failures and financial performance: Empirical evidence from the U.S. domestic airline industry

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ABSTRACT

Developing an understanding of the relationship between service quality and profitability is of central importance to operations management scholars. In this study we seek to reconcile inconsistencies between extant theory and empirical findings regarding the relationship between service quality and profitability in the airline industry. More specifically, we draw on theories from strategic management, operations strategy, and economics to explain why the relationship between measures of service quality and profitability will be moderated by an airline's competitive strategy. We test our hypotheses by fitting mixed-effects models to longitudinal data obtained from several governmental databases in the context of the U.S. domestic airline industry. We find that airline strategy moderates the relationship between some service failures and profitability. Specifically, we find that mishandled baggage and customer complaints more negatively affect the profitability of focused than non-focused airlines. We also find the relationship between arrival delays on profitability is universally negative for focused airlines, but displays an inverted U-shaped relationship for non-focused airlines. Our findings provide significant contributions to the existing body of knowledge in service quality and operations strategy. We further outline the implications of these findings for practice and future research.

1. Introduction

The relationship between service failures (the inverse of service quality) and firm profitability is of central importance to operations management scholars (Davis-Sramek et al., 2008; Voss et al., 2005; Yee et al., 2008). One context in which this relationship has been frequently examined is the U.S. domestic airline industry (Dresner and Xu, 1995; Steven et al., 2012; Tsikriktsis, 2007). A review of these studies reveals several findings that are inconsistent with the dominant perspective embodied by the service profit chain (Heskett and Schlesinger, 1994) which implies that service failures should negatively affect firm profitability. For example, Dresner and Xu (1995) find that [1] an increase in on-time arrival rate *negatively* predicts profitability, [2] an increase in the rate of mishandled baggage *positively* predicts profitability, and [3] an increase in the rate of involuntary denied boardings (ticket over-sales) *positively* predicts profitability. As another example, Steven et al. (2012) find an inverted U-shaped relationship between on-time arrival rate and profitability such that profits are maximized when approximately 17% of an airline's flights did not arrive on time. As such, there is the need for a more nuanced examination of the link between service failures and profitability to reconcile these findings with extant theory.

In this study, we provide this more nuanced examination by proposing that the relationship between service failures and airline financial performance is contingent on an airline's competitive strategy. Airlines serving the domestic U.S. market adopt one of two strategies. The first strategy, which has been labeled by various authors as "geographic specialist" (Lapré and Scudder, 2004), "focused" (Lapré and Tsikriktsis, 2006; Tsikriktsis, 2007), and "low-cost" (Wittman, 2014), is characterized by [1] flying point-to-point, [2] serving a limited number of geographic regions and/or city pairs, [3] operating fleets consisting of a few aircraft types, [4]

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primarily targeting economy customers seeking low prices, and [5] making limited use of strategic alliances. Exemplars of this strategy include Southwest and JetBlue. The second strategy, which has been labeled by various authors as "geographic generalist" (Lapré and Scudder, 2004), "full-service" (Lapré and Tsikriktsis, 2006; Tsikriktsis, 2007), and "network" (Wittman, 2014), is characterized by [1] using a hub-and-spoke network structure, [2] serving a large number of geographic regions and/or city pairs, [3] operating fleets consisting of many aircraft types, [4] primarily targeting business customers seeking greater service, and [5] making extensive use of strategic alliances. Exemplars of this strategy include American and United. Drawing on the work of Skinner (1974), we label the former strategy "focused" and the latter "non-focused".

Adopting core concepts (Meehl, 1990) from strategic management (Chandler, 1962; Porter, 1980), operations strategy (Chase and Hayes, 1991; Clark, 1996; Roth and Jackson, 1995; Roth and Menor, 2003), and economics (Mayer and Sinai, 2003), we explain why the pursuit of these different strategies will moderate the relationships between service failures and profitability. We test these predictions using quarterly longitudinal data for four measures of service failure (arrival delays, mishandled baggage, involuntary denied boarding, and customer complaints) and airline profitability (operating profit over operating revenue) for the operations of fourteen (seven focused and seven non-focused) major domestic airlines in the United States from 1998 to 2009. Consistent with our predictions, results from fitting a series of mixed-effects models (Fitzmaurice et al., 2011) indicate that [1] arrival delays have an approximately negative linear relationship with profitability for focused airlines but have an inverted U-shaped relationship with profitability for non-focused airlines, [2] mishandled baggage incidents more negatively affect the profitability of focused airlines than non-focused airlines, and [3] customer complaints more negatively affect the profitability of focused airlines than non-focused airlines.

Our findings provide several contributions to the operations management literature. First, our work extends findings from Steven et al. (2012) regarding their identification of an inverted U-shaped relationship between on-time arrival and financial performance by illustrating that this inverted U-shaped relationship only applies to non-focused airlines. Second, to the best of our knowledge, we are the first to hypothesize and find evidence that the relationship between customer complaints and airline profitability is moderated by airline strategy. This finding extends existing work seeking to utilize non-financial measures as predictors of financial performance (Behn and Riley, 1999; Riley et al., 2003; Sim et al., 2010) in that our findings indicate that analysts and investors should view customer complaints as a stronger predictor of the financial performance for focused airlines. Third, we suggest an alternative explanation to the one put forth by Tsikriktsis (2007) for why the relationship between arrival delays and profitability is moderated by airline strategy. Our explanation, we argue, has stronger explanatory coherence (Haig, 2005; Thagard, 1992) and is more consistent with the data at hand. This extends theory in OM by providing a more plausible understanding of the mechanisms operating to bring about the observed relationship between arrival delays and profitability for focused and non-focused airlines (Morgan and Winship, 2007).

This paper is organized as follows. Section 2 reviews the relevant literature. Section 3 contains the theory and hypothesis development. Section 4 describes the methodology and results. Section 5 describes implications for theory and practice in addition to limitations and directions for future research. Section 6 provides a brief conclusion.

2. Literature review

Service failures occur when the delivered service does not meet customers' ex ante expectations (Hoffman and Bateson, 2010; Oliver, 1980; Parasuraman et al., 1985). As such, service failures can be thought of as the inverse of service quality. Our research builds primarily on two research streams, one that examines how service quality affects customer satisfaction and firm financial performance in general, and a second that examines service quality (failure) in the airline industry. It should be noted that this literature review does not provide an exhaustive review of studies examining non-financial measures of performance. Rather, we focus on the studies most salient to our area of inquiry.

2.1. Quality in service Industries

There is strong agreement on the importance of quality as a major operational objective in both manufacturing and service operations (Chase and Hayes, 1991; Clark, 1996; Ferdows and De Meyer, 1990; Hayes and Pisano, 1996; Rosenzweig and Easton, 2010). Understanding how service quality affects firm financial performance has been an important topic of research for scholars in marketing (Anderson et al., 1994; Buzzell and Gale, 1987; Phillips et al., 1983), accounting (Ittner and Larker, 1998; Riley et al., 2003), and operations management (Davis-Sramek et al., 2008; Voss et al., 2005; Yee et al., 2008; Zhao et al., 2004). In general, these studies have posited and found a positive linear relationship between service quality and financial performance. This positive relationship has been explained through the theoretical framework termed the "service profit chain" (Heskett et al., 1997). The service profit chain proposes that internal quality (e.g., well-designed jobs) leads to satisfied, loyal, and productive employees who provide higher service value, which increases customer satisfaction, ultimately leading to superior financial performance (Heskett and Schlesinger, 1994; Loveman, 1998).

Some scholars, however, have called into question the view that service quality has a positive linear relationship with financial performance because [1] the marginal effect of service quality on revenue will diminish as service quality improves (Lambert, 1998; Steven et al., 2012) and [2] the marginal cost of improving service quality tends to increase once a firm achieves a high level of service quality (Ballou, 1999; Dresner and Xu, 1995). Our research contributes to this stream by investigating the curvilinear relationship between one measure of service failure, the percentage of flights that arrive late, and airline profitability.

2.2. Service quality and service failures in the airline industry

Research studying service failures in the airline industry can be classified into three broad categories. Studies in the first category investigate various issues pertaining to service failures using primary, subjective data from airline passengers. Within this category, one stream examines how customers' attributions (e.g., stability and controllability) of service failure affect satisfaction both directly and indirectly through anger, which in turn decreases satisfaction (Folkes et al., 1987; Taylor, 1994). Anderson et al. (2009) extend this stream by finding that key service elements (e.g., employee interactions) affect passengers' overall satisfaction with their flights differently if a flight was on-time vis-à-vis delayed by factors under an airline's control. A second stream investigates how service failures affect customer loyalty both directly and indirectly through customer satisfaction (Curry and Gao, 2012; Park et al., 2004; Vázquez-Casielles et al., 2007). In general, these studies find that service failures negatively affect customer loyalty directly and through customer satisfaction, with the caveats that the length of a passenger's relationship with an airline (Bejou and Palmer, 1998)